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MWRA

FACTS ABOUT

COMBINED SEWER OVERFLOWS

A MASSACHUSETTS WATER RESOURCES AUTHORITY PUBLICATION – FALL 1996

Parts of the sewer systems in Boston, Chelsea, Cambridge and Somerville collect sanitary sewage from homes and businesses in the same pipes used to collect stormwater runoff. These are called combined sewer systems. During dry weather, when only sanitary sewage is entering the pipes, the system can handle the flow and transport it to Deer Island for treatment. In wet weather, the addition of stormwater can overload the system. Combined sewage and rainwater can then overflow into the Charles, Mystic and Neponset Rivers and Boston Harbor through 81 active combined sewer overflows (called CSOs).

WHY ARE CSOs A PROBLEM?

These overflows pollute local waters, violating federal and state water quality standards. CSOs are the most frequent cause of beach closings around Boston Harbor. Over 1,000 U.S. communities have similar combined systems and water quality problems.

WHAT IS THE CSO PLAN?

Because any plan to restore Boston Harbor must include a remedy for CSOs, MWRA and the four combined sewer communities have been working together on both short-term and long-term solutions. In 1990, the first long-term CSO Plan was proposed. It called for $1.3 billion worth of deep-rock, underground tunnels to store wet-weather flow until it could be treated at the Deer Island Treatment plant. While this deep-tunnel storage solution had been a success in other cities, the cost and complexity of such projects concerned MWRA and its ratepayers.

THOUGH INFREQUENT, COMBINED SEWER OVERFLOWS ARE A MAJOR POLLUTION SOURCE FOR BOSTON HARBOR AND ITS TRIBUTARIES.

THE CSO PLAN WILL:

- Eliminate CSO discharges to Dorchester Bay, the Neponset River estuary and Constitution Beach in East Boston;
- Reduce untreated overflows in other receiving waters to an average of one to four times a year (compared to about 80 discharges a year currently);
- Upgrade CSO treatment facilities at Cottage Farm (along the Lower Charles), Prison Point Cambridge (on the Upper Inner Harbor) and Somerville/Marginal, at the confluence of the Mystic and Chelsea Rivers;
- Decommission CSO treatment facilities at Commercial Point and Fox Point in Dorchester and at Constitution Beach (perhaps turning them over to local communities for stormwater treatment).

In 1994, a second look at both CSOs and the entire sewer system brought a different solution, contained in a revised CSO Plan. Using a watershed approach, this new plan offers real water quality improvements at a reasonable price: $370 million in construction, design and operating costs. It does so by fully integrating CSO projects with other sewer system upgrades. It recognizes that by 1997 sewer system improvements will have reduced CSO volumes by 70 percent from 1988 levels, and that 60 percent of the remaining flows will be getting local treatment (screening and disinfection).

Under the plan, 28 different projects will focus on improving water quality within five geographic areas, known as basins. They are: Dorchester Bay and the Neponset River; Constitution Beach in East Boston; the Charles River; Alewife Brook and the Mystic River; and Boston Harbor. This watershed approach is in keeping with new state and federal CSO policy. It targets critical areas where shellfishing, swimming and other recreational activities take place and looks to improve the quality of water that flows into the harbor from its tributary rivers.

WHO WILL IMPLEMENT THE CSO PLAN?

Some CSO projects will be implemented by MWRA and some by the communities where the projects are located. MWRA has taken responsibility for facilities planning and environmental assessment for all of the projects, as well as design and construction of projects that will be MWRA-owned sites.

The CSO communities will be responsible for the permitting, design and construction of projects that will become community-owned facilities, including sewer separation projects and floatables control at community-owned CSO outfalls. MWRA will design and construct all of the Chelsea CSO projects, although some of them are owned by the city. The estimated annual cost of operating and maintaining these facilities is $5.5 million.

The plan is moving forward quickly. A July 1995 decision by the Secretary of Environmental Affairs required the preparation of an Environmental Impact Report (EIR). The Secretary also allowed MWRA to begin projects whose construction will have minimal environmental impacts. These projects include sewer separation work, upgrades to existing facilities and projects to control the floating pollution typically associated with CSO discharges.

Projects going directly to design and construction address specific quality problems. Interceptor relief projects in Chelsea, for example, will direct flows into the treatment plant that currently surcharge and cause local flooding. In North Dorchester Bay, relocating the flow that is currently released from CSOs will help cut back on beach closings.

HOW AND WHEN WILL THE WORK TAKE PLACE?

MWRA's program to fix CSOs was designed to be completed in three phases. The first phase, which took place between 1988 and 1992 as part of the Boston Harbor Project, included an investment of over $200 million to construct CSO treatment facilities and improve Deer Island's power and pumping capacity. This work resulted in a 55 percent reduction in annual CSO volume and provided screening and disinfection for over 50 percent of the remaining flow.

The second phase of the plan is underway and is expected to be completed by 1997. This phase includes additional Deer Island improvements and low-cost modifications to 150 CSO locations in the existing system. This phase will further reduce CSO volumes by 70 percent over 1988 and provide screening and disinfection – at minimum – for about 60 percent of the remaining flow.

The final phase of the plan began this year and will be completed by 2008. This work will reduce CSO volume by 84 percent over 1988 conditions and provide screening and disinfection – at minimum – for 96 percent of the remaining flow.

By the time the construction program is completed, 22 of the existing 81 CSO discharge locations will be closed, 11 will discharge treated flow and 48 will be reduced to four or fewer discharges per year.

THIS BOSTON STRUCTURE (FOREGROUND) IS TYPICAL OF CSO-FACILITY CONSTRUCTION.

WHO WILL PAY FOR THE PLAN?

MWRA will fund all projects through its Capital Improvement Program. This includes capital costs for planning, design and construction. To establish working relationships to complete the projects, MWRA has developed financial assistance agreements with the CSO communities. In accordance with the plan, these agreements establish schedules, provide funding and define ownership and operation responsibilities. The goal of the agreements is to comply with the court schedule and realize water quality benefits in a reasonable time frame while minimizing economic hardship for residents.

VP ANNOUNCES BREAK FOR RATEPAYERS

Vice President Al Gore stood in the Charlestown Navy Yard on a glorious spring Saturday last week and gave... ratepayers an Earth Day present by approving a scaled-down version of the Boston Harbor cleanup plan. It could save the average consumer $90 a year off what would have been a $130 rate increase...MWRA's director and the EPA's regional administrator make a persuasive case that the new plan will eliminate sewer overflows at critical locations where swimming and shellfishing occur and that runoff will be sharply reduced...

The Boston Globe, Thursday, April 25, 1996

HOW IS THE PUBLIC INVOLVED?

Public comment has shaped the CSO Control Plan from the outset. The 1990 plan was reexamined at the request of the CSO communities (who thought the flow estimates that drove the design of the plan were inaccurate) and MWRA, which felt the cost of the project would be too high for ratepayers.

A Technical Advisory Committee (TAC) composed of CSO community residents, wastewater and local and DPW officials and members of business and environmental organizations meets monthly to review project plans and reports.

The CSO team makes regular presentations in neighborhoods affected by proposed projects. MWRA publishes a newsletter, ***CSO Bulletin***, about four times a year and distributes it to more than 1,500 people.

ARE THERE IMPACTS – SUCH AS ODORS OR TRAFFIC – CONNECTED WITH THESE FACILITIES?

Although CSO facilities are not sewage treatment plants, MWRA builds them with odor-control technology. On occasion, a facility's closest neighbors might catch a musty smell – much like the odor of a passing garbage truck – when material screened after rainstorms is transported away.

Chlorine customarily used for disinfection in these facilities is a bit stronger than household bleach and might create a swimming pool smell. MWRA rarely receives odor complaints about its CSO facilities. Interested citizens, including prospective neighbors of new facilities, are encouraged to tour MWRA facilities for a first-hand look.

Most of the impacts of CSO facilities are associated with construction rather than operation. MWRA requires its contractors to mitigate or lessen negative impacts as much as possible, and these requirements are discussed with neighborhood residents at each step along the way.

MWRA has ongoing discussions with neighborhoods affected by all of the projects being evaluated for the Draft Environmental Impact Report. These meetings will continue into the design phase for these projects to ensure that community concerns are reflected in the final design and construction planning.

MASSACHUSETTS WATER RESOURCES AUTHORITY

The Massachusetts Legislature created MWRA in 1985 to manage water and sewer services for 2.5 million people and 5,500 businesses in 61 communities. While the Boston Harbor Project is the best known of MWRA's projects, the Authority also maintains 400 miles of water pipes, aqueducts and tunnels, and 228 miles of sewers. Also underway are projects to control combined sewer outflows, provide adequate water delivery and meet all federal, state and local water and sewer standards.

THE BOSTON HARBOR PROJECT

MWRA's effort to control the pollution of Boston Harbor is centered around two programs: the Boston Harbor Project and the Combined Sewer Overflow Control Plan.

The Boston Harbor Project is a $3.4 billion, 11-year program to construct new wastewater treatment facilities at Deer Island. When completed at the end of the century, the project will ensure that wastewater discharges from 43 sewer-service communities meet all state and federal standards for protecting public health and the marine environment.

The project includes a new primary and secondary treatment plant on Deer Island; a headworks on Nut Island; a five-mile long tunnel connecting the headworks with the treatment plant and related facilities. A new 27-foot-diameter, 9.5-mile-long tunnel will discharge treated wastewater through 55 diffusers into Massachusetts Bay, ensuring that the effluent is well mixed with sea water.

The CSO Control Plan will reduce pollution from 81 CSOs in the region that can carry a combination of stormwater and sanitary sewage into the harbor and its tributaries during rainstorms. The completed project will reduce the volume of CSO flows by 84 percent over 1988 conditions and provide screening and disinfection to 96 percent of the remaining flow. Many outfalls will be closed or diverted. The plan will result in significant water quality improvements.

MWRA offers a wide variety of informational materials on the region's water and sewer systems and the natural environment. To find out what's available, contact MWRA's Public Affairs Department at:

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